Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Presently Amended) In a method of conducting a heterogeneous chemical reaction including the steps of forming a reactant mixture comprising one or more heterogeneous reactant(s) in a reactor, and causing said reactant(s) to react in the presence of a solid catalyst [under near- or supercritical reaction conditions] to yield a reaction mixture, the improvement which comprises using as said solid catalyst a macroporous solid catalyst having a surface area of from about 50-400 m^2/g, and an average pore size of from about 70-150 Å, and carrying out said reaction under near- or supercritical reaction conditions relative to said reactant mixture.

2. (Original) The method of claim 1, said surface area being about 200 m^2/g.

3. (Original) The method of claim 1, said catalyst comprising a perfluorinated polymer having sulfonic acid groups coupled thereto.

4. (Original) The method of claim 1, said chemical reaction selected from the group consisting of alkylation, acylation, isomerization, aromatic disproportionation, alcohol synthesis and Fischer-Tropsch reactions.

5-8 (Canceled)

9. (Original) The method of claim 1, said reaction being carried out at a temperature of from about 0.9-1.3 T_c of the reactant mixture.

10. (Original) The method of claim 9, said temperature being from about 1.01-1.2 T_c of the reactant mixture.

11. (Original) The method of claim 1, said reaction being carried out at a pressure of from about 0.9-2.5 P_c of the reactant mixture.

12. (Original) The method of claim 11, said reaction being carried out at a pressure of from about 1.01-1.2 P_c of the reactant mixture.

13. (Original) The method of claim 1, said reactant mixture being formed by continuously introducing said reactant(s) into said reactor including a co-solvent or diluent under substantially steady state reactor conditions, said catalyst being susceptible to deactivation owing to coke laydown during the course of said reaction, said method including the step of regenerating said catalyst by terminating said introduction of at least one of said reactant(s) prior to a time when said solid catalyst is significantly deactivated owing to coke laydown, elevating the pressure and/or lowering the temperature within said reactor to remove at least a portion of any coke on the catalyst,

resuming introduction of said reactant(s) into said reactor and reestablishing said substantially steady state conditions.

14. (Original) The method of claim 13, the pressure within said reactor being elevated by at least about 40%, as compared with the pressure within the reactor during said chemical reaction.

15. (Original) The method of claim 13, the reactor temperature being lowered while still maintaining the reactor temperature above the Tc of the co-solvent or diluent.

16. (Original) A method of conducting a heterogeneous chemical reaction comprising the steps of:

introducing one or more heterogeneous reactant(s) and a co-solvent or diluent into a reactor to form a reactant mixture, and causing said reactant(s) to react therein to yield a reaction mixture in the presence of a solid catalyst susceptible to deactivation owing to coke laydown during the course of said reaction,

said reaction being carried out under substantially steady state near- or supercritical reaction conditions for the reactant mixture;

regenerating said catalyst of coke during the course of said reaction, including the steps of interrupting said chemical reaction by terminating said introduction of at least one of said reactant(s) into said reactor prior to a time when the catalyst is significantly

deactivated, and regenerating said catalyst by elevating the pressure within said reactor and/or lowering the reactor temperature to effect at least partial removal of coke from said catalyst; and

resuming said chemical reaction by again introducing said reactant(s) into the reactor, and reestablishing said substantially steady state conditions.

17. (Original) The method of claim 16, said regenerating step being carried out before the rate of production of a desired reaction product falls by a factor of 20%, as compared with the steady state reaction product production rate prior to the regenerating step.

18. (Original) The method of claim 16, said solid catalyst having a surface area of from about 50-400 m^2/g.

19. (Original) The method of claim 16, said catalyst comprising a perfluorinated polymer having sulfonic acid groups coupled thereto.

20. (Original) The method of claim 16, said chemical reaction selected from the group consisting of alkylation, acylation, isomerization, aromatic disproportionation, alcohol synthesis and Fischer-Tropsch reactions.

21-24. (Canceled)

25. (Original) The method of claim 16, said reaction being carried out at a temperature of from about 0.9-1.3 T_c of the reactant mixture.

26. (Original) The method of claim 25, said temperature being from about 1.01-1.2 T_c of the reactant mixture.

27. (Original) The method of claim 16, said reaction being carried out at a pressure of from about 0.9-2.5 P_c of the reactant mixture.

28. (Original) The method of claim 27, said reaction being carried out at a pressure of from about 1.01-1.2 P_c of the reactant mixture.

29. (Original) The method of claim 16, the pressure within said reactor during said regenerating step being elevated by at least about 40%, as compared with the pressure within the reactor during said chemical reaction.

30. (Original) The method of claim 16, the reactor temperature being lowered while still maintaining the reactor temperature above the Tc of the co-solvent or diluent.

31. (Original) The method of claim 16, including the step of recovering said removed coke.

32-47. (Canceled)

Remarks/Arguments:

Claims 1-4, 9-20 and 25-31 remain for consideration in this application. In view of the claims as they now stand, together with the remarks hereunder, the rejections of the last office action must be respectfully traversed.

The present invention in one aspect is concerned with a method of conducting a heterogeneous chemical reaction wherein a reaction mixture comprising one or more heterogeneous reactants are reacted in the presence of a solid catalyst to yield a reaction mixture. In accordance with the invention, improved results are obtained when this reaction is carried out using a macroporous solid catalyst having an average pore size of from about 70-150 Å, and also at near- or supercritical conditions *relative to the reactant mixture*. This is to be contrasted with prior art reaction schemes wherein the reaction conditions are at near- or supercritical conditions relative to the *reaction mixture*, and use is made of a microporous solid catalyst.

In another aspect, the invention provides a method of conducting a heterogeneous chemical reaction wherein the reaction conditions are near- or supercritical relative to the reactant mixture and the catalyst is regenerated by interrupting the introduction of at least one of the reactants prior to a time when the catalyst is significantly deactivated and regenerating the catalyst by either elevating